

WHAT IS CLAIMED IS:

1. In a computer system, a method of combining first and second filtering trees, comprising:

5 determining whether two nodes at a topmost level of each of the first and second trees are both OR nodes, and if so, providing a resulting OR node of a single resultant filtering tree;

10 merging each child node of the first tree with a child node of the second tree into a merged node when such nodes can be successfully combined, and adding each merged node to the resulting OR node as a child node thereof; and

15 adding each child node of the first tree and each child node of the second tree that cannot be successfully combined to the resulting OR node as a child thereof; and if the topmost nodes are not both OR nodes, evaluating each topmost node.

2. The method of claim 1 further comprising, merging child nodes beneath a merged node into a merged child node 20 when child nodes can be successfully combined.

3. The method of claim 1 wherein merging each child node that can be successfully combined includes performing a union of a set of data points of each node.

4. The method of claim 1 wherein evaluating the topmost nodes determines that one node is an OR node, and further comprising, treating the other topmost node as a single child  
5 of an OR node.

5. The method of claim 1 wherein evaluating the topmost nodes determines that neither topmost node is an OR node, and further comprising, determining whether the two topmost nodes  
10 represent a same event variable.

6. The method of claim 5 wherein the two topmost nodes do not represent the same event variable, and further comprising, providing an OR node, and adding the first and  
15 second trees to the OR node as children thereof.

7. The method of claim 5 wherein the two topmost nodes represent the same event variable, and further comprising, merging the two topmost nodes into a merged node.  
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8. The method of claim 7 wherein merging the topmost nodes includes performing a union of a set of data points of each node.

9. The method of claim 7 further comprising merging child nodes at each level of children below the merged node into a merged child node when such child nodes can be merged.

5 10. The method of claim 1 further comprising, traversing the resultant filtering tree with actual event data.

11. A computer-readable medium having computer-executable instructions, comprising:

10 receiving notification of an occurrence of an event; and  
traversing an event filtering tree to determine at least one query satisfied by the event, including, reaching an OR node, branching to a child node of the OR node, performing a first evaluation of the child node against information of the  
15 event, branching to a leaf node based on the result of the first evaluation and obtaining query information from that leaf node, returning to the OR node, branching to another child of the OR node, performing a second evaluation of the other child node against information of the event, branching  
20 to a leaf node based on the result of the second evaluation and obtaining query information from that leaf node, and using the query information obtained from each leaf node that was reached to determine at least one subscriber to notify of the occurrence of the event.

12. The computer-readable medium of claim 11 wherein the query information in each leaf node corresponds to registered subscribers.

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13. The computer-readable medium of claim 11 wherein the query information in each leaf node identifies at least one query satisfied thereby, and wherein using the query information includes determining which subscribers correspond to each satisfied query.

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14. The computer-readable medium of claim 11 wherein the query information in each leaf node includes true or false information corresponding to a set of at least one query.

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15. The computer-readable medium of claim 11 wherein performing a first evaluation of the child node against information of the event includes comparing an event parameter value against a data point.

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16. The computer-readable medium of claim 11 having further computer executable instructions for, receiving a set of queries, and constructing the event filtering tree therefrom.

17. The computer-readable medium of claim 16 wherein the set of queries is received from an event subscriber.

5 18. The computer-readable medium of claim 16 wherein the set of queries is received from an event provider.

19. A computer-readable medium having stored thereon a data structure, comprising:

10 a first child node representing a first event parameter;  
at least two leaf nodes under the first child node, each leaf node including information corresponding to at least one query;

15 a second child node representing a second event parameter;

at least two leaf nodes under the second child node, each leaf node including information corresponding to at least one query;

an OR node; and

20 information indicating a parent and child relationship between the OR node and the first node, and a parent and child relationship between the OR node and the second node, wherein the first node is branched to by the OR node during a tree traversal, and the first node selectively branches to one of

the leaf nodes thereunder based on an evaluation of actual event data to obtain first query information therefrom, and wherein the second node is branched to by the OR node during a tree traversal, and the second node selectively branches to  
5 one of the leaf nodes thereunder based on an evaluation of actual event data to obtain second query information therefrom.

20. The computer-readable medium having stored thereon the  
10 data structure claim 19 wherein the first child node includes a plurality of data points.